



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE  
BEFORE THE HONORABLE BOARD OF PATENT APPEALS AND  
INTERFERENCES

In re the

application of: CHARLES E. BOWERS

Docket: 30-2138CIP1

Serial Number: 09/933,822

Group Art Unit: 1733

Filed: September 19, 1997

Examiner: S. Yao

For: YARN WITH HEAT-ACTIVATED BINDER MATERIAL

Colonial Heights, VA 23804

February 22, 2001

BRIEF ON APPEAL

Assistant Commissioner for Patents  
Washington, D.C. 20231

Sir:

Applicant hereby appeals to the Board of Patent Appeals and Interferences from the decision of the Primary Examiner mailed February 22, 2000, finally rejecting claims 16, 18 and 21. A Notice of Appeal was filed on August 22, 2000. The Commissioner is authorized to charge the Appeal Brief Filing Fee [37 CFR §1.17(c)] of \$310.00 to Deposit Account No. 01-1125. The Commissioner is authorized to charge \$1,390.00 for a four (4) month extension fee [37 CFR § 1.17(a)(4)] for filing the Appeal Brief or any additional fees which may be required by this paper, or credit any overpayment to Deposit Account No. 01-1125.

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**I. REAL PARTY IN INTEREST**

The real party in interest is Honeywell International Inc., successor in interest to AlliedSignal Inc., which is the assignee of record.

**II. RELATED APPEALS AND INTERFERENCES**

The parent application of which this is a continuation in part, USSN 08/792,819, filed January 30, 1997, has claims (numbered 38-45) under final rejection mailed May 16, 2000. A notice of appeal was filed in that case on October 13, 2000. A divisional of the parent application, USSN 08/593,178, filed February 1, 1996, has claims (numbered 48-67) on appeal, mailed November 19, 1998. There are no other related applications on appeal or subject to an interference that are known to appellant, appellant's legal representative or the assignee that will directly affect, or be directly affected by, or have a bearing on the Board's decision in this appeal.

**III. STATUS OF CLAIMS**

Claims 16, 18 and 21 are presented on appeal. These claims have been finally rejected in the Office Action identified above. A copy of the claims on appeal is attached in the Appendix under Section IX. No claims are allowed.

In particular, claims 16, 18 and 21 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Lofquist, U.S. Patent 5,478,624.

Claims 16, 18 and 21 further stand provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-3 of co-pending Application No. 09/143,583 in view of Stahlecker et al., U.S. Patent 4,495,758. This provisional rejection does not present an issue on appeal.

**IV. STATUS OF ALL AMENDMENTS FILED SUBSEQUENT TO FINAL REJECTION**

There have been no amendments filed subsequent to the issuance of the Final Rejection mailed February 22, 2000.

## V. SUMMARY OF THE INVENTION

The invention is a process for producing a tufting yarn. Carpet constructed from yarn produced according to this process exhibits improved wear and crush resistance. The yarn is most preferably produced from precursor base fibers and from about 0.1 to 12 weight percent of a heat activated binder material, preferably a binder fiber, that has a lower melting point than the melting point of the base fibers. The precursor base fiber is supplied as a bundle of fibers, either staple (claim 18) or continuous filament, that is subsequently ring spun or wrap spun with a second fiber to form a yarn. The second fiber, which is twisted or wrapped uniformly around the fiber bundle during spinning, comprises a binder material in amount sufficient to constitute 0.1 to 12 percent by weight of the yarn. Two or more of these spun yarns are optionally ply twisted to form a plied yarn. The yarn is heated to melt the binder material (fiber), preferably during twist setting, which causes bonding to occur discontinuously and randomly over substantially the entire length of the yarn at locations of fiber contact. This yarn is then used as face fiber in pile carpet constructions. The bonds formed by the cooled binder material unexpectedly enhance the rigidity of the carpet tufts and thus, their resistance to crushing or compression. See, e.g., Examples 3 and 4 found on pages 8-11.

## VI. ISSUES

Whether claims 16, 18 and 21 are unpatentable under 35 U.S.C. §103(a) over Lofquist, U.S. Patent 5,478,624.

## VII. GROUPING OF CLAIMS

Claim 16 is the independent claim, from which claims 18 and 21 directly depend.

## VIII. ARGUMENTS

It is the Examiner's position that claims 16 and 21 are taught by Lofquist, but for the ring spinning or wrap spinning technique and the uniform twisting or wrapping of the binder material-containing fiber about another fiber. The ring spinning and wrap spinning techniques are deemed by the Examiner to be routine in the art, and the uniform wrapping of a fiber bundle with binder fiber material is deemed by the

Examiner to be well within the purview of choice in the art. Appellant disagrees for the reasons that follow.

For prima facie obviousness a reference must provide motivation for one of ordinary skill in the art to modify the prior art structure to arrive at Appellant's invention with a reasonable expectation of success in achieving the advantages of the invention. There must be a sufficient basis to conclude that the proposed modification was obvious to do – obvious to try is not the standard. In re Antonie, 195 USPQ 6 (CCPA 1977). During this consideration, all of the claim limitations must be considered. In re Kuehl, 177 USPQ 250 (CCPA 1973). Where the art of record contains no teaching or suggestion of the cause and effect relationship discovered by Appellant, the invention is not prima facie obvious.

The Examiner readily admits that Lofquist does not expressly teach either the ring spinning or wrap spinning of a base fiber bundle with a second, binder material-containing fiber to form a yarn characterized by the second fiber being twisted or wrapped uniformly around the base fiber bundle. The Examiner further states that the process taught by Lofquist (which he deems to be commingling of binder fibers with bulk continuous base fibers), if modified to a wrap spinning or ring spinning technique, would apparently uniformly wrap the binder material-containing fiber around the base fiber. Appellant asserts that this is hindsight, given Appellant's teaching.

A commingled yarn intermixes filaments "without adding twist or otherwise disturbing the parallel relationship of the combined filaments." See attached definition and accompanying drawing figure from Dictionary of fiber & Textile Technology, Hoechst Celanese, p. 32, 1990. There would therefore be no motivation to modify Lofquist. Furthermore, although it is known in the art to form a yarn where a binder strand is spirally wrapped around a core strand, such a binder strand physically binds the wrapped fiber to permit downstream processing. See statement and references cited by Appellant in the specification on page 3, lines 1-5. Appellant is unaware, however, of any teaching or suggestion that such a spirally wrapped binder strand contains heat-activated adhesive material, as required by the claims on appeal.

Appellant acknowledges that Lofquist teaches use of base staple fiber blended with a staple binder fiber for subsequent processing. Appellant respectfully submits, however, that this falls short of teaching or suggesting Appellant's invention as claimed in claim 18 wherein the base fiber bundle (to be wrapped) is formed from staple filament.

CONCLUSION

For all of the above reasons, the rejections of claims 16, 18 and 21 under 35 U.S.C. §103(a), as being unpatentable, should be reversed.

Respectfully submitted,  
CHARLES E. BOWERS

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Attachments: Appendix IX  
3 pages from Dictionary

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IX. APPENDIX - CLAIMS ON APPEAL

16. A process for producing a yarn suitable for tufting, said process comprising the steps of:
- a. forming a bundle of fiber prior to spinning;
  - b. ring spinning or wrap spinning the bundle of fiber with a second fiber to form a yarn, said second fiber being twisted or wrapped uniformly around the bundle of fiber and comprising a heat-activated binder material having a melting point lower than that of said bundle of fiber, said yarn comprising 0.1 to 12 weight percent of the binder material;
  - c. heating the yarn sufficiently to melt the binder material; followed by
  - d. cooling the yarn to solidify the binder material.
18. The process of claim 16 wherein the bundle of fiber is formed by spinning staple fiber.
21. The process of claim 16 further comprising the step of ply twisting at least two of the yarns to form a plied yarn between the spinning and heating steps.